WE CLAIM:

1. A container comprising at least three bands of a material, a first inner band being nested within a second band which is nested within a third band, said bands being oriented relative to one another to substantially enclose a volume and to form a container wall having a thickness substantially equivalent to the sum of the thicknesses of at least two of the bands.

2. The container of claim 1 wherein each of said first, second, and third bands is a tube having a longitudinal axis, and wherein the longitudinal axes of said first, second, and third bands are substantially perpendicular to one another.

3. The container of claim 2 wherein each of the bands is substantially polygonal in cross-section.

4. The container of claim 3 wherein at least one of said bands comprises a plurality of substantially rectangular surfaces in series, said surfaces numbering at least one more than the number of sides of the polygon of the cross-section of the band, and wherein said band comprising said surfaces is nested within another said band.

5. The container of claim 3 wherein each of the bands is substantially rectangular in cross-section to thereby substantially form a rectangular prism.

6. The container of claim 5 wherein each of the bands is substantially square in cross-section to thereby substantially form a cube.

7. The container of claim 1 wherein the first inner band is substantially hexagonal in cross-section and wherein there is a fourth band in which the third band nests.

8. The container of claim 1 wherein a rigid support structure is nested within said first inner band.

9. The container of claim 8 wherein said rigid support structure comprises a low density, lightweight polymeric or metallic band.

10. The container of claim 9 wherein said rigid support structure is wrapped with glass or carbon fibers.

11. The container of claim 8 wherein said first inner band is affixed to said rigid support structure.

12. The container of claim 1 wherein the band material comprises at least one fibrous layer, said fibrous layer comprising at least one network of fibers, at least about 10 weight percent of said fibers being substantially continuous lengths of fiber that encircle the enclosed volume.

13. The container of claim 12 wherein said fiber comprises a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

14. The container of claim 12 wherein at least about 50 weight percent of said fibers are substantially continuous lengths of fiber that encircle the enclosed volume, and wherein said bands are substantially seamless.

15. The container of claim 14 wherein at least about 75 weight percent of said fibers are substantially continuous lengths of fiber that encircle the enclosed volume.

16. The container of claim 15 wherein said fiber comprises a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

17. The container of claim 16 wherein said high strength fibers are selected from the group consisting of extended chain polyolefin fibers, aramid fibers, polyvinyl alcohol fibers, polyacrylonitrile fibers, liquid copolyester fibers, polyamide fibers, glass fibers, carbon fibers, and mixtures thereof.

18. The container of claim 16 wherein said fibers are polyolefin fibers.

19. The container of claim 16 wherein said fibers are aramid fibers.

20. The container of claim 16 wherein said fibers are a mixture of at least two of polyethylene fibers, aramid fibers, polyamide fibers, carbon fibers and glass fibers.

21. The container of claim 13 wherein said high strength fibers are selected from the group consisting of extended chain polyolefin fibers, aramid fibers, polyvinyl alcohol fibers, polyacrylonitrile fibers, liquid copolyester fibers, polyamide fibers, glass fibers, carbon fibers, and mixtures thereof.

22. The container of claim 13 wherein said fibers are polyolefin fibers.

23. The container of claim 13 wherein said fibers are aramid fibers.

24. The container of claim 13 wherein said fibers are a mixture of at least two of polyethylene fibers, aramid fibers, polyamide fibers, carbon fibers and glass fibers.

25. The container of claim 13 wherein the network of fibers is in a resin matrix.

26. The container of claim 25 wherein the matrix comprises a low modulus polymeric matrix selected from the group consisting of a low density polyethylene; a polyurethane; a flexible epoxy; a filled elastomer vulcanizate; a thermoplastic elastomer; and a modified nylon 6.

27. The container of claim 25 wherein said fiber comprises a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

28. The container of claim 27 wherein each of the bands is substantially polygonal in cross-section and deforms to increase the enclosed volume during an explosion.

29. The container of claim 25 wherein at least about 50 weight percent of said fibers are substantially continuous lengths of fiber that encircle the enclosed volume, and wherein said bands are substantially seamless.

30. The container of claim 29 wherein at least about 75 weight percent of said fibers are substantially continuous lengths of fiber that encircle the enclosed volume.

31. The container of claim 1 wherein said band material comprises an oriented film selected from the group consisting of homopolymers and copolymers of thermoplastic polyolefins, thermoplastic elastomers; crosslinked thermoplastics, crosslinked elastomers, polyesters, polyamides, fluorocarbons, urethanes, epoxies, polyvinylidene chloride, polyvinyl chloride, and blends thereof.

32. The container of claim 31 wherein said band material further comprises a network of fibers, at least about 10 weight percent of said fibers being substantially continuous lengths of high strength fiber that encircle the enclosed

volume, said high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

33. A blast resistant container comprising three tubular bands of a composite material, each of said bands being substantially rectangular in cross-section, a first rigid inner band being nested in a second band which is nested in a third band so as to form a rectangular prism having six faces each of which has a thickness substantially equivalent to the sum of the thicknesses of at least two of the bands.

34. The blast resistant container of claim 33 wherein said composite material comprises at least one fibrous layer, said fibrous layer comprising at least one network of high strength fibers dispersed in a resin matrix, at least about 10 weight percent of said fibers being substantially continuous lengths of fiber that encircle the prism.

35. The blast resistant container of claim 34 wherein the third band is substantially seamless and comprises four rectangular surfaces in series which encircle the prism.

36. The blast resistant container of claim 35 wherein the bands deform during an explosion to increase the volume enclosed thereby.

37. In a blast resistant container having an access opening, the improvement comprising a hinge-less, channel-less closure for said opening, said closure comprising at least one band of a material which encircles the container to at least partially cover said access opening.

38. The improved container of claim 37 wherein said band slides on said container in a first direction to at least partially expose said access opening and in a second direction to at least partially cover said access opening.

39. The improved container of claim 38 wherein said closure further comprises a second band of material which encircles the container adjacent to the other band to at least partially cover said access opening, said second band also sliding on said container in the first direction to at least partially expose said access opening and in the second direction to at least partially cover the access opening.

40. The improved container of claim 39 wherein said bands telescope when slid in said first direction to at least partially expose said access opening.

41. The improved container of claim 38 wherein said closure further comprises a second band of material which encircles the container adjacent to the other band to at least partially cover said access opening, said second band also sliding on said container in the second direction to at least partially expose said access opening and in the first direction to at least partially cover the access opening.

42. The improved container of claim 37 wherein said container includes a door for said access opening, said band at least partially covering said door when said door is closed over said access opening.

43. The improved container of claim 37 wherein the band material comprises at least one fibrous layer, said fibrous layer comprising at least one network of fibers, at least about 10 weight percent of said fibers being substantially continuous lengths of fiber that encircle the container.

44. The improved container of claim 43 wherein said fiber comprises a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

45. The improved container of claim 43 wherein at least about 50 weight percent of said fibers are substantially continuous lengths of fiber that encircle the container, and wherein said band is substantially seamless.

46. The improved container of claim 45 wherein at least about 75 weight percent of said fibers are substantially continuous lengths of fiber that encircle the container.

47. The improved container of claim 45 wherein said fiber comprises a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

48. The improved container of claim 47 wherein said high strength fibers are selected from the group consisting of extended chain polyolefin fibers, aramid fibers, polyvinyl alcohol fibers, polyacrylonitrile fibers, liquid copolyester fibers, polyamide fibers, glass fibers, carbon fibers, and mixtures thereof.

49. The improved container of claim 47 wherein said fibers are polyolefin fibers.

50. The improved container of claim 47 wherein said fibers are aramid fibers.

51. The improved container of claim 47 wherein said fibers are a mixture of at least two of polyethylene fibers, aramid fibers, polyamide fibers, carbon fibers and glass fibers.

52. The improved container of claim 44 wherein said high strength fibers are selected from the group consisting of extended chain polyolefin fibers, aramid fibers, polyvinyl alcohol fibers, polyacrylonitrile fibers, liquid copolyester fibers, polyamide fibers, glass fibers, carbon fibers, and mixtures thereof.

53. The improved container of claim 44 wherein said fibers are polyolefin fibers.

54. The improved container of claim 44 wherein said fibers are aramid fibers.

55. The improved container of claim 44 wherein said fibers are a mixture of at least two of polyethylene fibers, aramid fibers, polyamide fibers, carbon fibers and glass fibers.

56. The improved container of claim 47 wherein the network of fibers is in a resin matrix.

57. The improved container of claim 56 wherein the matrix comprises a low modulus polymeric matrix selected from the group consisting of a low density polyethylene; a polyurethane; a flexible epoxy; a filled elastomer vulcanizate; a thermoplastic elastomer; and a modified nylon 6.

58. In a blast resistant container having an access opening, the improvement comprising a self-storing, sliding door comprising a plurality of substantially parallel flexibly connected slats of a rigid material, said slats being mounted on a track affixed to an interior surface of the container adjacent to said opening for sliding in a first direction to expose said opening and for sliding in a second direction to close said opening.

59. The improved container of claim 58 wherein said slats are blast resistant.

60. The improved container of claim 59 wherein each of said slats comprises a rigid inner shell wrapped in a fibrous layer comprising at least one network of fibers dispersed in a resin matrix, at least about 10 weight percent of said fibers comprising high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

61. The improved container of claim 60 wherein said high strength fibers are selected from the group consisting of extended chain polyolefin fibers, aramid fibers, polyvinyl alcohol fibers, polyacrylonitrile fibers, liquid copolyester fibers, polyamide fibers, glass fibers, carbon fibers, and mixtures thereof.

62. The improved container of claim 60 wherein said matrix comprises a low modulus polymeric matrix selected from the group consisting of a low density polyethylene; a polyurethane; a flexible epoxy; a filled elastomer vulcanizate; a thermoplastic elastomer; and a modified nylon 6.

63. The improved container of claim 60 wherein said rigid inner shell comprises a honeycomb structure and wherein said high strength fibers are glass or carbon fibers.

64. The improved container of claim 58 further comprising a hinge-less, channel-less closure for said opening and said door, said closure comprising at least one band of a blast resistant material which encircles the container to at least partially cover said access opening and said door.

65. A blast resistant container, said container comprising at least two tubes substantially coaxially mounted and capable of rotational movement relative to one another, said tubes each having an access opening therein which can be aligned by rotation to permit access to the container and which can be mis-aligned by rotation to permit closure of the container, at least one of said tubes being formed of a blast resistant material.

66. The container of claim 65 further comprising at least one band of a material which encircles the outer tube and which comprises at least one network

of high strength fibers, at least about 10 weight percent of said fibers comprising continuous lengths which encircle the outer tube at least once.

67. The container of claim 66 wherein said network of high strength fibers is dispersed in a resin matrix.

68. The container of claim 65 wherein the blast resistant material comprises at least one fibrous layer comprising at least one network of fibers dispersed in a resin matrix, at least about 10 weight percent of said fibers comprising continuous lengths of a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

69. The container of claim 65 wherein the tube formed of a blast resistant material is closed at its ends.

70. The container of claim 65 wherein the tube formed of a blast resistant material is open at its ends.

71. The container of claim 70 further comprising at least one blast-resistant composite strip affixed to and encircling the open tube in a hoop direction for reinforcement of said tube.

72. The container of claim 71 wherein said strip comprises a unidirectional tape or an oriented film.

73. The container of claim 71 wherein said strip comprises an oriented film selected from the group consisting of homopolymers and copolymers of thermoplastic polyolefins, thermoplastic elastomers, crosslinked thermoplastics, crosslinked elastomers, polyesters, polyamides, fluorocarbons, urethanes, epoxies, polyvinylidene chloride, polyvinyl chloride, and blends thereof.

74. In a blast resistant container, the improvement comprising a composite strip attached to and reinforcing said container, said strip comprising a tape of unidirectional high strength fibers or oriented film encircling the container in a hoop direction at least once.

75. The container of claim 74 wherein said strip comprises a tape of unidirectional high strength fibers having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

76. The container of claim 74 wherein said strip comprises a tape of oriented film selected from the group consisting of homopolymers and copolymers of thermoplastic polyolefins, thermoplastic elastomers, crosslinked thermoplastics, crosslinked elastomers, polyesters, polyamides, fluorocarbons, urethanes, epoxies, polyvinylidene chloride, polyvinyl chloride, and blends thereof.

77. A tubular container in accordance with claim 74 wherein a plurality of said strips are attached to said container substantially in parallel in a hoop direction.

78. The container of claim 77 wherein said strips are spaced apart a distance of from about 2 to 6 inches (about 5.1 to about 15.3 centimeters) and cover less than about 20 percent of the surface area of the container.

79. The container of claim 77 wherein said container is open at its ends.

80. A blast resistant container, said container comprising at least two spheres concentrically mounted and capable of rotational movement relative to one another, said spheres each having an access opening therein which can be aligned by rotation to permit access to the container and which can be mis-aligned by rotation to permit closure of the container, at least one of said spheres being formed of a blast-resistant material.

81. The container of claim 80 further comprising at least one band of a material which encircles the outer sphere and which comprises at least one network of high strength fibers, at least about 50 weight percent of said fibers comprising continuous lengths of fiber which encircle the outer sphere at least once.

82. The container of claim 81 wherein said network of high strength fibers is dispersed in a resin matrix.

83. The container of claim 80 wherein the blast resistant material comprises at least one fibrous layer comprising at least one network of fibers dispersed in a resin matrix, at least about 50 weight percent of said fibers being substantially continuous lengths of a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

84. A blast resistant container comprising at least two open boxes and at least one rigid band, one of said boxes being nested within the other said box with

its open side facing into the other said box and with said band encircling the nested boxes, at least one of said boxes and said band being formed of a blast-resistant material.

85. The container of claim 84 wherein the blast resistant material comprises at least one fibrous layer, said fibrous layer comprising at least one network of high strength fibers dispersed in a resin matrix, at least about 50 weight percent of said fibers being substantially continuous lengths of fiber that encircle the nested boxes.

86. The container of claim 85 wherein said high strength fibers are selected from the group consisting of extended chain polyolefin fibers, aramid fibers, polyvinyl alcohol fibers, polyacrylonitrile fibers, liquid copolyester fibers, polyamide fibers, glass fibers, carbon fibers, and mixtures thereof.

87. The container of claim 85 wherein said fibers are polyolefin fibers.

88. The container of claim 85 wherein said fibers are aramid fibers.

89. The container of claim 85 wherein said fibers are a mixture of at least two of polyethylene fibers, aramid fibers, polyamide fibers, carbon fibers and glass fibers.

90. The container of claim 85 wherein the matrix comprises a low modulus polymeric matrix selected from the group consisting of a low density polyethylene; a polyurethane; a flexible epoxy; a filled elastomer vulcanizate; a thermoplastic elastomer; and a modified nylon 6.

91. A blast directing container comprising at least one rigid, substantially seamless band of blast resistant material, said band having two open sides, said material comprising a network of high strength fibers in a resin matrix, at least about 10 weight percent of said fibers comprising continuous lengths in the direction of the band.

92. The container of claim 91 wherein at least about 50 weight percent of said fibers comprise continuous lengths in the direction of the band.

93. The container of claim 91 wherein said band includes a lip on each side thereof.

94. The container of claim 93 comprising a plurality of said rigid bands arranged in parallel with their respective open sides adjacent to one another.

95. The container of claim 91 comprising a plurality of said rigid bands arranged in parallel with their respective open sides adjacent to one another.

96. The container of claim 91 wherein said band is substantially polygonal in cross-section and deforms during an explosion to become substantially circular in cross-section.

97. A method of making at least one blast resistant band, comprising the steps of:

A. wrapping at least one flexible sheet of a high strength fiber material around a mandrel in a plurality of layers under tension sufficient to remove voids between successive layers;

B. securing the layers of material together to form a substantially seamless first band; and

C. removing the band from the mandrel.

98. The method of claim 97 wherein said securing step comprises contacting the high strength fiber material with a resin matrix and consolidating the layers of high strength fiber material and the resin matrix on the mandrel.

99. The method of claim 98 wherein said high strength fiber material is contacted with the resin matrix prior to the wrapping step.

100. The method of claim 98 wherein said high strength fiber material is contacted with the resin matrix during the wrapping step.

101. The method of claim 98 wherein said high strength fiber material is contacted with the resin matrix after the wrapping step.

102. The method of claim 97 further comprising the step of applying an adhesive to at least one side of said sheet prior to the wrapping step.

103. The method of claim 97 wherein said sheet is wider than said band and wherein the method further comprises the step of partially cutting the wrapped sheet to create at least one area that can be folded to form a lip for the band.

104. The method of claim 97 wherein the wrapping tension is at least about 0.1 lb/linear inch.

105. The method of claim 104 wherein the wrapping tension is at least about 0.5 lb/linear inch.

106. The method of claim 105 wherein the wrapping tension is at least about 1.0 lb/linear inch.

107. A method of making a plurality of bands for assembly into a blast resistant container, comprising the steps of:

A. wrapping a first flexible sheet of a high strength fiber material around a mandrel in a plurality of layers under sufficient tension to remove voids between successive layers to form a first band;

B. contacting the high strength fiber material of the first flexible sheet with a resin matrix;

C. placing spacing means on the exterior of the first band;

D. wrapping a second flexible sheet of a high strength fiber material around the spacing means in a plurality of layers under sufficient tension to remove voids between successive layers to form a second band;

E. contacting the high strength fiber material of the second flexible sheet with a resin matrix;

F. placing second spacing means on the exterior of the second band;

G. wrapping a third flexible sheet of a high strength fiber material around the second spacing means in a plurality of layers under sufficient tension to remove voids between successive layers to form a third band;

H. contacting the high strength fiber material of the third flexible sheet with a resin matrix;

I. repeating the placing, wrapping, and contacting steps to create a desired number of bands;

J. consolidating at least a part of each of the bands on the mandrel; and

K. removing the bands and spacing means from the mandrel.

108. The method of claim 107 wherein said consolidating step occurs after all of the bands have been wrapped on the mandrel.

109. The method of claim 107 wherein said consolidating step occurs after each band is wrapped.

110. The method of claim 107 further comprising the step of applying an adhesive to at least one side of each of the sheets prior to wrapping.

111. The method of claim 107 wherein at least one of said sheets is wider than its corresponding band, and wherein the method further comprises the step of partially cutting the wider sheet to create at least one area that can be folded to form a lip for the corresponding band.

112. The method of claim 107 wherein the wrapping tension is at least about 0.1 lb/linear inch.

113. The method of claim 107 wherein the wrapping tension is at least about 0.5 lb/linear inch.

114. The method of claim 107 wherein the wrapping tension is at least about 1.0 lb/linear inch.

115. The method of claim 107 wherein the high strength fiber material of each of the sheets is contacted with the resin matrix prior to its respective wrapping step.

116. The method of claim 107 wherein the high strength fiber material of each of the sheets is contacted with the resin matrix during its respective wrapping step.

117. The method of claim 107 wherein the high strength fiber material of each of the sheets is contacted with the resin matrix after its respective wrapping step.